AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-22. (Canceled without prejudice or disclaimer).

23. (New) A device intended to emit waves in an underground formation, comprising at least one vibrator including two slabs, at least one motive element suited to generate vibrations and to communicate them to the slabs, and a generator for applying periodic control signals to the at least one motive element, where the vibrator is positioned in a well or cavity and embedded in at least one solid material providing coupling thereof with the underground formation, the at least one material being in contact with the two end plates over at least part of each of the respective faces thereof.

24. (New) A device as claimed in claim 23, comprising anchor bars associated with at least one of the slabs to increase coupling of the vibrator with the mass of coupling material

25. (New) A device as claimed in claim 23, wherein each slab comprises at least two plates arranged at a distance from one another and connected by anchor bars.

26. (New) A device as claimed in claim 24, when the outer surface of each slab is provided with an uneven relief to increase an area of coupling of the device with the coupling material.

27. (New) A device as claimed in claim 24, wherein the anchor bars are provided with an uneven relief to increase the area of coupling of the device with coupling material.

28. (New) A device as claimed in claim 24, wherein the slabs are perforated so as to facilitate penetration of the coupling material in the space contained between the two end plates.

29. (New) A device as claimed in claim 24, comprising a single solid coupling material distributed so as to provide coupling of the vibrator with the formation, at least at the opposite ends thereof.

30. (New) A device as claimed in claim 29, comprising at least two coupling materials, a first material being distributed in two distinct masses to provide coupling of the vibrator with the formation, at the opposite ends thereof, and a second material being inserted between the two masses.

31. (New) A device as claimed in claim 24, comprising vibrators connected to a signal generator, the vibrators being arranged at intervals in relation to one another along a well and embedded in at least one coupling material.

32. (New) A device as claimed in claim 31, comprising a control inserted between the vibrators and the signal generator allowing the vibrator to be triggered successively.

33. (New) A device as claimed in claim 31, comprising a seismic receiver coupled with the formations surrounding the well at a determined depth and connected to an acquisition and processing unit provides sequential control of the vibrators so as to obtain an emission oriented according to a predetermined pattern.

34. (New) A device as claimed in claim 31, comprising seismic receivers associated with the various vibrators and connected to an acquisition and processing unit for determining traveltimes of waves between locations of the vibrators and to control the vibrators sequentially to obtain an emission oriented according to a predetermined pattern.

35. (New) A device as claimed in claim 25 , comprising receivers fastened to supports secured to anchor bars.

36. (New) A device as claimed claim 24, wherein each vibrator comprises a pillar of elements coated with a protective sheath, the coupling material being in contact with protective sheath and the two slabs over at least part of each of the respective faces thereof.

37. (New) A device as claimed in claim 36, wherein a space between the sheath and the pillar of elements is filled with a liquid.

38. (New) A device as claimed in claim 36, wherein the pillar comprises a piezoelectric or magnetostrictive sensitive element.

39. (New) A device as claimed in claim 24, wherein each motive element is an electromechanical, an electromagnetic or a hydraulic type.

40. (New) A method of generating in an underground formation vibrational signals according to an oriented emission pattern, comprising :

installing in a same well vibrators each comprising two slab, at least one motive element for generating vibrations and to communicate the vibrations to the plates and a generator for applying periodic control signals to the motive element, each vibrator being positioned in a well or cavity and embedded in at least one solid material providing coupling thereof with the underground formation, the at least one solid material being in contact with the two slabs over at least part of each of the respective faces thereof; and

sequentially controlling the various vibrators by means of a control with

time lags between respective triggering times that depend on intervals between locations of the vibrators and a velocity of propagation of waves in the formations surrounding the well, so as to obtain a directive emission.

41. (New) A method as claimed in claim 40, wherein sequential control of the vibrators comprises applying to the vibrators control signals at a fixed frequency f whose phase Φ_i is related to said frequency f and to the time lag by a relation

$\Phi_i = 2\pi.f.t_i$.

42. (New) A method as claimed in claim 40, wherein sequential control of the vibrators comprises applying to the vibrators control signals of fixed frequencies so as to allow separation thereof.

43. (New) A method as claimed in claim 40, comprising coupling with the formation surrounding the well a seismic receiver and determining traveltimes of the waves respectively between each vibrator and receiver.

44. (New) A method as claimed in claim 40, comprising adding to the vibrators receivers connected to a signal acquisition and processing unit and sequential triggering of the vibrators with time lags between the respective triggering times calculated by the unit by calculating a time lag between the signals produced by the receivers.